



Received: 19 Sep. 2013
Accepted: 14 Nov. 2013
Editor: R. Causse

Range extension of tripletail *Lobotes surinamensis* (Lobotidae) in the Adriatic Sea. A northernmost record in the Mediterranean

by

Jakov DULČIĆ* (1), Branko DRAGIČEVIĆ (1), Lovrenc LIPEJ (2) & Mauro ŠTIFANIĆ (3)

Résumé. – Extension de l'aire de répartition du Triple queue *Lobotes surinamensis* (Lobotidae) en mer Adriatique. L'occurrence la plus septentrionale en mer Méditerranée.

Le 12 mai 2013, un spécimen de *Lobotes surinamensis* de 342 mm de longueur totale a été capturé dans la baie de Raša (crique Luka), sur la côte sud de la péninsule d'Istra, en mer Adriatique septentrionale. Cette capture serait l'occurrence la plus septentrionale pour l'Adriatique et la mer Méditerranée.

Key words. – Lobotidae – *Lobotes surinamensis* – Mediterranean – Range extension – Record

The Atlantic tripletail *L. surinamensis* is a cosmopolitan fish species found in tropical and subtropical waters of all oceans, except eastern Pacific, ranging from 45°N to 42°S and from 100°W to 161°E (Froese and Pauly, 2013). Among two species in the Lobotidae family (Froese and Pauly, 2013), only *L. surinamensis* can be found in the Mediterranean Sea (Froese and Pauly, 2013). Tripletail inhabits a variety of habitats, from estuarine to open ocean waters, and is usually found in association with submerged or floating structures. Juvenile specimens are usually found swimming on their side at the surface, probably mimicking a floating leaf in order to avoid predators, but also attracting potential prey (Froese and Pauly, 2013). Although tripletails sporadically occur at certain locations in the southern Mediterranean, this species is still considered rather rare for the Mediterranean as a whole (Akyol and Kara, 2012).

The aim of this paper is to present range extension of tripletail in the Adriatic Sea and northernmost record in the Mediterranean Sea.

On 12 May 2013, one specimen of *L. surinamensis* (TL = 342 mm, W = 845.32 g) (Fig. 1) was captured by hand net at the surface in Raša Bay (Luka cove) (44°58'37"N; 14°3'57"E, northern Adriatic, southern coast of Istra Peninsula) (Fig. 2). According to the literature, this is the northernmost record of this species for the Adriatic and Mediterranean seas. Its main diagnostic measurements (in mm) and characteristics (in agreement with Akyol and Kara, 2012) are as follows: standard length (SL) 297 mm, head length (HL) 89 mm, predorsal length 90 mm, preanal length 194 mm, prepectoral length 94 mm, prepelvic length 102 mm, body depth 138 mm, eye diameter 13 mm, interorbital length 28 mm, preorbital length 19 mm. Meristic counts: Dorsal fin XII+16, anal fin II+12, pectoral fin 16, pelvic fin I+5, caudal fin 18. The specimen was deposited in the Institute of Oceanography and Fisheries (Split), collection, under the ID code LobsurlOR-12513.

Gonads of the specimen were inconspicuous, which suggests it was a juvenile. Akyol and Kara (2012) reported specimens of 245 and 296 mm, in northern Aegean Sea, as juvenile fish. Juveniles of this species are considered to be epipelagic and may occur in floating Sargassum and mimic a floating leaf (Froese and Pauly, 2013). Our specimen was caught alive at the surface while passively drifting. However, it is unclear whether this behaviour was natural or the specimen was moribund.

This species was recorded for the first time in the Adriatic Sea on 21 June 2010 (near Biševo Island) (Dulčić and Dragičević,



Figure 1. - *Lobotes surinamensis*, caught in the Adriatic Sea (Raša Bay, Luka cove), 342 mm TL.

(1) Institute of Oceanography and Fisheries, Šetalište Ivana Meštrovića 63, 21000 Split, Croatia. [brankod@yahoo.com]

(2) Marine Biology Station-Piran, Fornače 41, 6330 Piran, Slovenia. [Lovrenc.Lipej@mbss.org]

(3) Juraj Dobrila University of Pula, Zagrebačka 30, 52000 Pula, Croatia. [mauro.stifanic@unipu.hr]

* Corresponding author [dulcic@izor.hr]

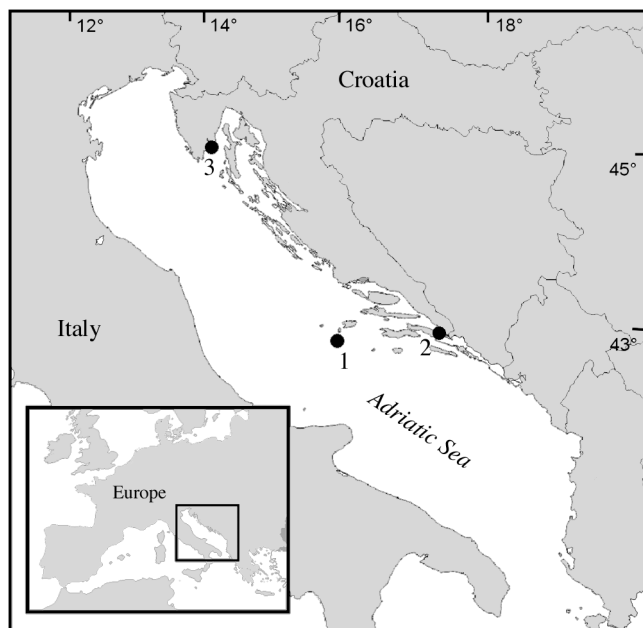


Figure 2. - Locations of the occurrences of *Lobotes surinamensis* in the Adriatic Sea. 1: Dulčić & Dragičević, 2011; 2: Valter Kožul, pers. com.; 3: this paper).

2011). On 5 December 2011, *L. surinamensis* was recorded for the second time in southern Adriatic (Mali Ston Bay) (Fig. 2) (Valter Kožul, pers. com.). According to available literature, the present record represents the northernmost record of this species in the Mediterranean Sea. Worldwide northernmost occurrences of *L. surinamensis* include records from Nova Scotia (Canada) and Russian waters (region of Kuriles) (Gilhen and McAllister, 1985; Kharin *et al.*, 2009). It seems that the northernmost occurrence of this species in the western Mediterranean waters was from El Masnou harbour (Barcelona) (Palom, 1991), while in the Adriatic Sea, it was near Biševo Island (middle Adriatic) (Fig. 1) (Dulčić and Dragičević, 2011). Azzurro (2008) noted that *L. surinamensis* is a native subtropical Mediterranean species whose range is expanding northwards. Findings of *L. surinamensis* in the Adriatic Sea are probably a consequence of increased abundance of this species in the Mediterranean waters (especially in Maltese coastal waters). It seems that this species recently established its population in the area of Maltese Islands, which is indicated by the presence of juveniles and adults in the area (Deidun *et al.*, 2010).

Until recently, presence of certain thermophilic, rare and alien species in the Adriatic Sea was usually attributed to the phenomenon of the Adriatic ingressions (an influx of eastern Mediterranean water mass in the Adriatic Sea) (Pallaoro, 1988). However, according to Civitarese *et al.* (2010), more complex dynamics of the Southern Adriatic and Ionian Sea linked by means of the Bimodal Oscillating System (BiOS) mechanism could provide a more plau-

sible explanation for occurrences of such species. While, according to BiOS, occurrences of Lessepsian and other eastern Mediterranean migrants could be attributed to cyclonic circulation of the North Ionian gyre, anticyclonic circulation might facilitate influx of marine biota from regions of central Mediterranean (for detailed explanation see Civitarese *et al.*, 2010). In this context, it is possible that the presence of *Lobotes surinamensis* in the Adriatic Sea is a consequence of anticyclonic circulation of North Ionian gyre. However, this presumption should be substantiated by additional evidences. Aforementioned northernmost records indicate an extension of the previously acknowledged range of this species.

Acknowledgements. – We would like to thanks Milivoj Crvak for providing us a specimen of tripletail. This work was supported by project 001-0013077-0844 financed by Ministry of Science, Education and Sports of Republic of Croatia.

REFERENCES

- AKYOL O. & KARA A., 2012. - Record of the Atlantic tripletail, *Lobotes surinamensis* (Bloch, 1790) in the Bay of Izmir, northern Aegean Sea. *J. Appl. Ichthyol.*, 28: 645-646.
- AZZURRO E., 2008. - The advance of thermophilic fishes in the Mediterranean sea: overview and methodological questions. *In: Climate warming and related changes in Mediterranean marine biota* (Briand F., ed.). No 35 in CIESM Workshop Monographs, Monaco, pp. 39-46.
- CIVITARESE G., GAČIĆ M., LIPIZER M. & EUSEBI BORZELLI G.L., 2010. - On the impact of the Bimodal Oscillating System (BiOS) on the biogeochemistry and biology of the Adriatic and Ionian Seas (eastern Mediterranean). *Biogeosciences*, 7: 3987-3997.
- DEIDUN A., VELLA P., SCIBERRAS A. & SAMMUT R., 2010. - New records of *Lobotes surinamensis* (Bloch, 1790) in Maltese coastal waters. *Aquat. Invasions*, 5(suppl. 1): 113-116.
- DULČIĆ J. & DRAGIČEVIĆ B., 2011. - First record of the Atlantic tripletail, *Lobotes surinamensis* (Bloch, 1790), in the Adriatic Sea. *J. Appl. Ichthyol.*, 27: 1385-1386.
- FROESE R. & PAULY D., 2013. - FishBase. World Wide Web electronic publication. Available at: www.fishbase.org, version (accessed on 4 Sep. 2013).
- GILHEN J. & McALLISTER D.E., 1985. - The tripletail, *Lobotes surinamensis*, new to the fish fauna of the Atlantic coast of Nova Scotia and Canada. *Can. Field-Nat.*, 99: 116-118.
- KHARIN V.E., VYSHK VARTSEV D.I. & MAZNIKOVA O.A., 2009. - About the taxonomic status of rare fish species Surinam tripletail *Lobotes surinamensis* (Lobotidae) and new discovery of this species in Russian waters. *J. Ichthyol.*, 49: 32-38.
- PALLAORO A., 1988. - On the possibilities of the occurrence of certain fish species in the Middle Adriatic connected with the Adriatic ingressions in years 1986/1987. *Morsko Ribarstvo*, 3: 82-87. (In Croatian)
- PALOM O., 1991. - Primera cita de *Lobotes surinamensis* (Bloch, 1790) (Pisces, Lobotidae) para la ictiofauna ibérica. *Misc. Zool.*, 15: 240-242.